

ART 34 AMDT

US 8 / 23 62 5
IPEA/US 14 SEP 1999

WHAT IS CLAIMED IS:

1. A fluorescent composition for manufacture of a single-layer optical disk of CD-ROM type with fluorescence reading, the fluorescent composition comprising:
- at least one fluorescent dye;
 - at least one film-forming polymer;
 - a plastisizer; and
 - an organic solvent.
2. The fluorescent composition of claims 1 or 2, further comprising:
- a surfactant; and
 - a light stabilizer.
3. The fluorescent composition of claim 1 or 2, wherein the fluorescent dye is in a concentration of 0.001 – 0.1 mole per kg of the film-forming polymer.
4. The fluorescent composition of claim 1, 2 or 3, wherein the fluorescent dye is selected from the group consisting of xanthene dyes of the eosine group, xanthene dyes of the rhodamine group, acridine dyes, oxazine dyes, azine dyes, indigoide dyes, perylene dyes, violanthrone dyes, cyanine dyes, phthalocyanine dyes, and porphyrins.
5. The fluorescent composition of any of the preceding claims, wherein the film-forming polymer is in a concentration of 2.0–50.0 g/l.
6. The fluorescent composition of claim 5, wherein the film-forming polymer is selected from the group consisting of polyvinylacetals, acrylic resins, cellulose ethers, cellulose esters, phenol-formaldehyde resins, melamine-formaldehyde resins, urea-formaldehyde resins, and polyvinylacetate.
7. The fluorescent composition of claim 6, wherein the plasticizer is in a concentration

BEST AVAILABLE COPY

JUL 07 23 31 5
PEA/US 14 SEP 1999

of 1.0 – 50.0 wt. % with respect to film-forming polymer.

8. The fluorescent composition of claim 7, wherein the plasticizer is selected from the group consisting of phthalic esters, sebacic esters, and phosphate esters.

9. The fluorescent composition of claim 8, wherein the surfactant comprises a non-ionogenic compound in a concentration of 0.0 – 2.0 wt. % with respect to film-forming polymer.

10. The fluorescent composition of claim 9, wherein the light stabilizer comprises HALS (Hindered Amine Light Stabilizer) in a concentration of 0.1 – 2.0 wt. % with respect to the film-forming polymer.

11. The fluorescent composition of claim 10, wherein the organic solvent is selected from the group consisting of methanol, ethanol, isopropanol, pentanol and mixtures thereof.

12. A method of manufacturing a CD-ROM type optical disk, the method comprising:
providing a substrate which is formed as a disk which has a surface, said surface is covered with pits; and

applying a fluorescent composition by spin coating, roller coating, or dip coating to the surface of the substrate so as to fill the pits with the fluorescent composition, while the surface outside the pits remains free of the fluorescent composition and does not fluoresce.

13. The method of claim 12, wherein the pits are 0.1-1.0 micrometers deep.

14. The method of claim 13, wherein the pits are 0.3-0.5 micrometers deep.

15. The method of claims 10 or 12, further including the steps:

ART 34 AMDT

T/US9 8 / 23 62 5

14 SEP 1999

forming a plurality of single-layer disks with filled pits; and
sequentially affixing the plurality of single-layer disks onto one another.

16. The method of claim 15, wherein the plurality of single-layer disks are affixed onto one another by gluing.

17. The method of claim 16, wherein the plurality of single-layer disks are formed and glued to one another such that the multi-layer disk comprises active layers alternating with inactive layers.

18. The method of claim 17, wherein the inactive layers are 20-50 micrometers thick.

19. The method of claim 18, wherein the inactive layers are transparent to a wavelength of light used to cause the fluorescent composition to fluoresce and to a wavelength of light given off by the fluorescent composition when the fluorescent composition fluoresces.

20. The method of claim 16, wherein the single-layer disks are glued onto one another with a UV-light cured optical adhesive.

21. The method of claim 20, wherein the UV-cured optical adhesive is selected from the group consisting of P-92, UV-69, UV-71, UV-74, J-91, VTC-2, and SK-9 adhesives. 22.

A fluorescent CD-ROM optical disk comprising at least one substrate, said substrate containing pits wherein said pits are filled or coated with a fluorescent composition, said fluorescent composition comprising a fluorescent dye, a film-forming polymer and a plasticizer.

22. A fluorescent CD-ROM optical disk comprising at least one substrate, said substrate containing pits wherein said pits are filled or coated with a fluorescent composition,

BEST AVAILABLE COPY

ART 34 AMDT

US 9 8 / 23 62 B

14 SEP 1999

said fluorescent composition comprising a fluorescent dye, a film-forming polymer and a plastisizer.

23. The optical disk of claim 22, wherein the fluorescent composition further comprises a surfactant and a light stabilizer.

24. The optical disk of claim 23, wherein the fluorescent dye of the fluorescent composition is in a concentration of about 0.001 - 0.1 mole per kg of the film forming polymer.

25. The optical disk of claim 22, wherein the film forming polymer is in a concentration of about 2.0 - 50.0 g/l.

26. The CD-ROM optical disk of claim 25, wherein the film forming polymer is selected from the group consisting of polyvinylacetals, acrylic resins, cellulose ethers, cellulose esters, phenol-formaldehyde resins, melamine-formaldehyde resins, urea-formaldehyde resins, and polyvinylacetate.